ENERGY POLICY UPDATE

MARCH 24, 2014

The Energy Policy Update Electronic Newsletter is published by the Arizona Governor's Office Of Energy Policy and is provided free of charge to the public. It contains verbatim excerpts from international, domestic energy, and environment-related publications that are reviewed by Community Outreach Personnel. For inquiries, call 602-771-1143 or toll free to 800-352-5499. To register to receive this newsletter electronically or to unsubscribe, email Gloria Castro.

UPCOMING WEBINARS

State & Local Energy Efficiency Action Network Webinar: Setting Energy Savings for Utilities
Thursday, March 27, 2014
11:00 AM – 12:00 PM MST
Click here to register.

U.S Dept. of Energy Webinar: Best of the Clean Cities Tools & Resources
Monday, March 31, 2014
1:00 PM – 2:00 PM EST
Click here to register.

U.S Dept. of Energy Webinar: Engaging Building Occupants to Reduce Energy Use
Tuesday, April 1, 2014
3:00 PM – 4:00 PM EST
Click here to register.

State & Local Energy Efficiency Action Network Webinar: Behavior-Based Energy Efficiency
Thursday, April 3, 2014
1:00 PM – 2:15 PM MST
Click here to register.

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The Arizona Republic now has limited access. As such, links may or may not work.

ARIZONA-RELATED

APS Finds New Ways to Satisfy Energy Efficiency Standards

[Energy Prospects West, Mar. 18] The Arizona Corporation Commission has approved Arizona Public Service's request to consider improvements in transmission, distribution, generation and other facilities as counting toward energy-efficiency targets. The Arizona efficiency standard, which the commission adopted in 2010, requires investor-owned electric utilities to gradually increase their savings from energy efficiency to reach 22 percent of retail sales from efficiency in 2020. APS' plan, called the Resource Savings Initiative, was approved by the ACC on March 11 on a 3-2 vote. The initiative would expand the kinds of energy-saving or demand-response projects the utility can use to meet the energy-efficiency standard. APS did not identify any specific improvements in the transmission, distribution, generation and facility categories, but it is expected to make detailed proposals when it files its 2015 energy-efficiency plan late this year.

Carbon Dioxide Sequestration Potential of the Permian Cedar Mesa Sandstone, Northeastern Arizona

[Arizona Geological Survey, Mar. 19] Tucson, Arizona – The potential role of anthropogenic carbon dioxide emissions from coal fired power plants and other industrial plants in global climate change is driving studies of sedimentary basins in Arizona for their carbon sequestration potential. A new Arizona Geological Survey study, "An evaluation of carbon dioxide sequestration potential of the Permian Cedar Mesa Sandstone, northeastern Arizona", by the Arizona Geological Survey shows that the Cedar Mesa Sandstone on the southwestern Colorado Plateau of northeastern Arizona has promise as a potential geologic repository of anthropogenic carbon dioxide.

Report: Pima County Met About Half Its 'Sustainability' Goals

[Arizona Daily Star, Mar. 17] Pima County has met more than half of the goals it set five years ago when it decided to implement environmentally friendly practices in its operations. The county says it has also saved more than $7.2 million during that time in energy costs, mostly as a result of acquiring solar panels at some county facilities and following new energy- and water-use guidelines, according to a report it released last

week. Despite the savings, the county has not met its goal of reducing energy expenditures below $15 million per year, due partially to an increase in how much the county pays for energy and making infrastructure improvements to treat wastewater. The County Board of Supervisors adopted a sustainability plan in 2008. Since then, the county has focused on buying alternative-fuel vehicles, buying open land and improving recycling efforts.

Power-Plant Plans on Collision Course with Rural Lifestyle

A desert enclave in western Arizona prepares for the fight of its life

[AzCentral.com, Mar. 16] BOUSE – The light breeze spreads a cloud of yellow pollen from rows of scraggly jojoba bushes. As he bounces along in a pickup, Kerry Starr watches over workers preparing for the summer harvest. Things are looking good at the farm outside Bouse, about an hour south of Lake Havasu City, which makes the news - rippling through this remote desert area so troubling. Phoenix-area utility Salt River Project has identified the area as a near-perfect candidate for a large nuclear or natural-gas power plant to serve the electricity demands of its nearly 1 million customers. Officials don't anticipate needing additional power from such a plant for a decade or more, but they have begun planning for a project that could take years of permitting and construction. SRP has begun offering Purcell Jojoba International and other property owners cash for their land. Few want to sell. Building a nuclear plant could take a decade or more, while a natural-gas plant would be much quicker, but utility officials emphasize that they have neither determined what type of plant they want near Bouse nor set a timeline for when they would build it. They also could build a plant elsewhere before pursuing the Bouse project. But Starr, the farmworkers and several dispersed residents in the desert area believe they are living on borrowed time because even if they hold out on SRP, they know the municipal utility, a subdivision of the state, can use its powers of eminent domain to take their land for market value.

Gila Bend Developing Into Solar Capital of the World

[Phoenix Business Journal, Mar. 17] Gila Bend officials have embraced solar in their small desert town, turning its 71 square miles into the solar capital of the state, the nation and possibly even the world. This isn't completely unexpected. A White House energy blog back in 2011 cited Gila Bend's solar proclivities. The 2,000-resident town will soon have 347 megawatts of solar-generated electricity after a new 32-megawatt utility project is up and running, said Town Manager Fredrick "Rick" Buss. To compare, an average rooftop system is 7 kilowatts. "Gila Bend is a model for utility-scale power plant development," Buss told me last week. "We know we can do it faster and cheaper than anyone in the U.S. and that should be attractive to developers. We just make it simple, and the solar community knows this." Buss started pushing for more solar projects in 2009 as the town was struggling economically. "It's a simple technology that's non-hazardous and good for the environment," said Buss, who owned a high-tech contamination control company, EnviroSafe Technical, before selling it for an undisclosed amount in 1998. "Solar is nonthreatening."

Hybrid Concentrated Solar System Blossoming

[Fierce Energy, Mar. 18] Arizona State University (ASU) is developing a hybrid concentrated solar system on the Tempe campus, which employs a solar tulip to concentrate the sun's energy, turning it into electricity. This will be the first ever solar hybrid generating facility at a university in the United States. The system alleviates the intermittency issues of solar, producing power around the clock and moving seamlessly from solar to natural gas or biogas. At night or when the sky is overcast, the system uses a range of fuels to heat the air and is thereby able to produce power and heat 24/7. In addition to the 100-foot high solar tulip, the technology includes a collection of mirrors to concentrate the sun's rays to heat compressed air to more than 1800 degrees Fahrenheit and drive a gas turbine. Additionally, the technology uses little to no water while producing a high quality thermal output in addition to power.

SRP Using Solar To Conserve Water

[Fierce Energy, Mar. 18] Salt River Project (SRP) has completed Tempe, Arizona's largest solar project to date. Located at Tempe's South Water Treatment Plant, the project features more than 3,000 solar panels that will generate more than 1.6 million kilowatt hours of electricity each year -- supplying 15 percent of the plant's energy needs. Tempe expects to save more than $25,500 in utility costs during the first year, with anticipated savings of $2.3 million over 20 years. The project will reduce the water plant's carbon emissions by 1,130 metric tons annually. SRP is commending the city of Tempe for investing in green energy in order to provide water to residents, as well as making a commitment to solar energy.

Tesla Sales Bill Moves Forward at Legislature as $5B Plant Decision Looms

[Phoenix Business Journal, Mar.20] An Arizona Senate committee has approved a bill that would allow Tesla Motors to sell its cars directly to consumers in the state. House Bill 2123 is opposed by car dealers and still faces plenty of hurdles at the Legislature. Under current state law, Tesla cannot directly sell its high-priced electric cars to Arizona customers. The California automaker is battling car dealers in other states over the same issue. The Senate Commerce, Military and Energy Committee approved the Tesla bill yesterday.

ALTERNATIVE ENERGY & EFFICIENCY

First Solar Sets Thin-Film Module Efficiency World Record of 17.0 Percent

- *17.0 Percent Total Area Efficiency Module Confirmed by NREL*
- *Highest Thin-Film Panel Conversion Efficiency of Any Technology*
- *Expands Opportunity for Constrained Space and C&I Installations*

[Business Wire, Mar. 19] NEW YORK – First Solar, Inc. (Nasdaq: FSLR) today announced it has set a world record for cadmium-telluride (CdTe) photovoltaic (PV) module conversion efficiency, achieving a record 17.0 percent total area module efficiency in tests performed by the U.S. Department of Energy's National Renewable Energy Laboratory (NREL). The new record is an increase over the prior record of 16.1 percent efficiency, which the company set in April 2013. This announcement comes weeks after First Solar announced it achieved a world record in CdTe research cell efficiency of 20.4 percent. The record-setting module was created at First Solar's Research and Development Center in Perrysburg, Ohio, using production-scale processes and materials, and included several recent technology enhancements that are incrementally being implemented on the company's commercial production lines.

Methanol as Fuel Substitute Gets Chilly U.S. Reception

[Bloomberg, Mar. 19] Backers of using methanol from natural gas as a substitute for gasoline got a chilly reception from a federal official who said he is skeptical the fuel will gain widespread adoption for use in cars and trucks. Industry representatives face obstacles promoting methanol as a way to cut greenhouse-gas emissions and boost engine performance, Patrick Davis, director of the Energy Department's Vehicles Technologies Office, said yesterday in Washington. "There's a lot of choices out there and they're all vying for a fairly limited market," Davis said at an industry event. "It is going to be a fight for any fuel to succeed."

Pilots Complain of Brightness from Huge Solar Farm

[Associated Press, Mar. 19] Pilots flying over the world's largest solar power plant in the Mojave Desert have complained of nearly blinding glare from the sun's reflection off its vast array of mirrors. Two anonymous complaints were filed with the federal government in August, months before the Ivanpah Solar Electric Generating System formally opened across roughly 5 square miles of federal land near the California-Nevada border, the Riverside Press-Enterprise reported Friday. A pilot wrote that it was impossible to look in the direction of the plant because of the intense brightness from the hundreds of thousands of mirrors. An air traffic controller reported receiving daily complaints about the brightness from pilots flying over the solar farm during the late morning and early

afternoon. Dozens of daily flights between Southern California and Las Vegas cross the area above or near the solar farm. "I have no idea what can be done about this situation, but being a passenger on an aircraft that flew through this airspace and saw it for myself, I would say that something needs to be done. It is extremely bright and distracting," the controller wrote. NRG Energy Inc., a co-owner and operator of the plant, was investigating the issue and will respond within 10 days, company spokesman Jeff Holland said on March 14.

ENERGY/GENERAL

78,600 Clean Energy, Transportation Jobs Reported in 2013

[Clean Edge News, Mar, 18] More than 78,600 clean energy and clean transportation jobs were announced in 2013 at 260 projects tracked by the nonpartisan business group Environmental Entrepreneurs (E2). Solar power generation was the year's top sector with more than 21,600 jobs announced. Other strong sectors included building efficiency and public transportation. Job announcements were made in 46 states, with California's roughly 15,400 jobs topping the list. Rounding out the Top 10 states for the year were: TX, HI, MD, MA, IL, NV, OR, NY and MO. The Top 10 states for the fourth quarter were: TX, AZ, NY, CA, IA, RI, HI, GA, ND and NM. This is the second full year E2 has tracked clean energy and clean transportation job announcements. Over the past two years combined, E2 has tracked more than 500 announcements that could create more than 186,500 jobs. The new report, as well as details on individual announcements, are available at www.CleanEnergyWorksForUs.org.

Global Energy Thirst Threatens Water Supplies, UN Says

[Bloomberg, Mar. 21] Shale gas and oil production as well as biofuels “can pose significant risks” to water resources, pitting energy producers against farmers, factories and providers of drinking and sanitation services, the agency said ahead of tomorrow’s annual World Water Day. Energy production will increasingly strain water resources in the coming decades even as more than 1 billion of the planet’s 7 billion people already lack access to both, according to a United Nations report. “There is an increasing potential for serious conflict between power generation, other water users and environmental considerations,” said the UN World Water Development Report published today that focused on water and energy. Ninety percent of power generation is “water-intensive,” it said. Shale gas and oil production as well as biofuels “can pose significant risks” to water resources, pitting energy producers against farmers, factories and providers of drinking and sanitation services, the agency said ahead of tomorrow’s annual World Water Day. Water-related needs for energy production have tripled since 1995, according to GE Water. Electricity demand is forecast to rise at least two-thirds by 2035, driven by population growth.

Japan Begins Subsidy Program for Lithium-Ion Batteries

[SolarServer.com, Mar. 17] Japan's Ministry of Economy, Trade and Industry (METI) has begun accepting applications from individuals and companies for a new subsidy program for stationary lithium-ion batteries. The program will cover 2/3 of the cost of qualifying systems, up to USD 10,000 for individuals and USD 1 million for corporations. METI has dedicated a budget of USD 100 million to the program. Qualifying systems must meet technical criteria including offering a power output of at least 1 kWh.

Mexican Oil Rush Is On as Ex-President Gets Black Gold Fever

[Bloomberg, Mar. 21] Mexican companies are racing to be first in line to invest in the country’s energy industry even before lawmakers pass final legislation that would end a 76-year state monopoly. Alfa SAB (ALFAA), owner of Mexico’s largest petrochemicals producer, sold $1 billion of bonds yesterday to help fund its energy business and refinance debt. State-owned Comision Federal de Electricidad plans to take advantage of the legal changes to sell natural gas, Chief Executive Officer Enrique Ochoa said at the Bloomberg Economic Summit in Mexico City yesterday. Former President Vicente Fox is creating a fund that aims to raise $500 million to invest in the country’s oil and

power sector. Mexican companies are seeking to reap the benefits from a potential surge in new investment as President Enrique Pena Nieto attempts to attract funds and arrest nine straight years of crude production declines with an energy overhaul. While lawmakers have yet to consider rules for putting in place the constitutional changes, Bank of America Corp. estimates the proposed legislation could boost foreign investment by as much as $20 billion a year. Oil production in Mexico may double to 5 million barrels per day, according to Citigroup Inc.

INDUSTRIES AND TECHNOLOGIES

AAA: Range of Electric Cars Cut in Cold, Hot Weather

[USA Today, Mar. 20] The range of electric vehicles can be greatly reduced, by up to 57%, depending on the temperature outside, auto club AAA says. The AAA Automotive Research Center in Southern California found that the average range of an electric car dropped 57% in very cold weather – at 20 degrees Fahrenheit – and by 33% in extreme heat, a temperature of 95 degrees. "We expected degradation in the range of vehicles in both cold and hot climates, but we did not expect the degradation we saw," said Greg Brannon, AAA's director of automotive engineering. AAA conducted a simulation to measure the driving range of three fully-electric vehicles – a 2013 Nissan Leaf, a 2012 Mitsubishi iMIEV and a 2014 Ford Focus Electric Vehicle – in cold, moderate and hot weather. It tested the vehicles for city driving to mimic stop-and-go traffic between December and January, fully charging each EV, and then "driving" each on a dynamometer in a climate-controlled room until the battery was fully exhausted. Brannon said two of the vehicles, the Mitsubishi and the Ford, were equipped with dedicated management of the battery temperature. "We were expecting that difference would yield differences in the optimal range of the vehicles in extreme temperatures," he said. "It did not." The likely reason: There's only once source of power in an electric vehicle – the battery. If battery power is being used to heat or cool the battery, it takes power away from the vehicle's range, he said.

First Solar, GE Partner To Shape Next-Generation PV Power Plant

[PennEnergy.com, Mar. 19] First Solar, Inc. (Nasdaq: FSLR) and GE's Power Conversion business (NYSE: GE) are utilizing their recently established technology and commercial partnership to develop a more cost effective and productive utility-scale PV power plant design that combines First Solar's thin-film CdTe modules with GE's new ProSolar 1500 Volt inverter/transformer system. First Solar has integrated new technology into its modules and optimized them for 1500VDC applications. Combined with GE's 4 MW ProSolar 1500V inverter/transformer stations, this development enables power plant engineering design that significantly increases the size of the solar array served by each inverter and reduces the number of inverter/transformer stations required for each plant to convert the power from direct current (DC) to alternating current (AC) and feed electricity to a commercial electrical grid. The resulting plant design maintains high power delivery while lowering installation and maintenance costs.

H2USA Driving Infrastructure for Hydrogen Fuel Cell Vehicles

[Fierce Energy Mar. 24] A consortium of energy companies, auto manufacturers, government laboratories, and other stakeholders is driving the acceleration of the rollout of an infrastructure for hydrogen-powered vehicles and related technologies. H2USA was launched last year by the Department of Energy (DOE) and other stakeholders to focus on furthering the infrastructure for hydrogen-powered vehicles, such as those powered by fuel cells. So far more than two dozen entities have joined H2USA, including the American Gas Association and national laboratories such as the DOE's Pacific Northwest National Laboratory, the National Renewable Energy Laboratory, Argonne and Sandia. Fuel cells are becoming more common in a variety of applications, including as back-up energy sources in buildings and cell towers, as well as powering cars and trucks.

Geothermal Industry Endorses Salton Sea Initiative

The GEA Board resolution notes that "the Salton Sea Known Geothermal Resource Area (SSKGRA) is one of the greatest opportunities for new geothermal energy development in the United States."

[Alternative Energy eMagazine, Mar. 17] Winter Haven, CA – The Geothermal Energy Association (GEA) today joined with other influential groups in endorsing the Salton Sea Restoration and Renewable Energy Initiative. Karl Gawell, GEA Executive Director, delivered a resolution from the group's Board of Directors to representatives of the Imperial Irrigation District at the Imperial Valley Renewable Energy Summit in Southern California. "By backing this initiative we are showing that there is widespread support across the geothermal industry for the effort, and hope that our endorsement will bring it closer to fruition," Gawell said. According to the Imperial Irrigation District (IID), "the Salton Sea Restoration & Renewable Energy Initiative, launched by the Imperial Irrigation District in partnership with Imperial County, will leverage funds generated by new renewable energy projects located at the Sea to help finance activities for air quality management and habitat restoration.

Lithium Producer Chases Tesla's Bold Battery Plan

[New York Times, Mar. 16] Last month, Tesla Motors, the maker of high-end electric cars, announced plans to open the world's largest battery plant in 2017. The goal is to overcome what it calls the biggest obstacle to meeting increased demand for its vehicles: a reliable supply of the advanced batteries that power them. To accomplish that, Tesla will need plenty of battery-grade lithium. That's where Simbol Materials comes in. Simbol, based in Pleasanton, Calif., is preparing to break ground on its own commercial plant in August, which would put it on track to start production around the same time Tesla's plant is scheduled to open. The Simbol plant will be the first to use a unique process to extract lithium from a novel source: the waste from geothermal power plants. Lithium demand is rising rapidly thanks to the growing need for lithium-ion batteries in electric cars, consumer electronics and energy storage. From 2000 to 2012, total lithium consumption grew an average of 6.4 percent a year, according to the United States Geological Survey. About 35 percent of lithium chemicals sold are used in batteries, and Tesla's plant would almost certainly increase that figure. The automaker aims to produce 30 gigawatt-hours of battery capacity a year, which is more than the total produced worldwide in 2013, according to Cosmin Laslau, a research analyst in energy storage for Lux Research.

Simbol Plans Commercial Lithium Extraction from Geothermal Waste

[Energy Manager Today, Mar. 18] Simbol Materials is building a plant with a novel lithium extraction process in a bid to provide the in-demand metal that electric car manufacturer Tesla needs for its recently announced battery plant. The Pleasanton, Calif., company is building a commercial facility that aims to extract lithium from the waste generated by geothermal power stations, reports The New York Times. The company is due to break ground on the plant in August, putting it on track to come online around the same time as the Tesla facility. Lithium demand grew an average of 6.4 percent a year from 2000 to 2012, largely on the back of its use in electronics, batteries for electric vehicles and other energy storage devices, and the upcoming Tesla plant – which would be the world's largest – would likely increase that demand, the paper reports.

Smart Water Network Transformation Could Take Decades

[Fierce Smart Grid, Mar. 18] Water utilities, like electric utilities, are relying on aging or inadequate infrastructure to meet growing demand, as well as facing difficult environmental targets and increasing regulatory requirements, while needing to reduce non-revenue water losses and improve their operational efficiency. Smart water meters are a key component of smart water networks, but other monitoring and control technologies are becoming increasingly important for leak detection, pressure management, and water quality monitoring. In fact, the installed base of advanced and smart water meters will reach more than 153 million worldwide by 2022, according to

Navigant Research. Further, Navigant Research forecasts that the global smart water networks market will expand from $1.1 billion in annual revenue in 2013 to more than $3.3 billion in 2022.

SolarCity Freezes Energy-Storage Program as Grid Connections Lag

[Bloomberg, Mar, 18] SolarCity Corp. (SCTY), the biggest developer of U.S. rooftop solar panels, halted efforts to install and connect systems that include batteries for power storage because California's utilities are reluctant to link them to the electric grid. About 500 SolarCity customers in the region have agreed to use the systems, and the state's three biggest utilities have connected 12 of them since 2011, said Will Craven, a spokesman for San Mateo, California-based SolarCity. SolarCity is testing the units with photovoltaic panels to generate power and batteries that retain that energy for use when the sun isn't shining. The combination makes customers less dependent on local utilities. It may be a threat to the business model that's underpinned the power industry for a century. "We've stopped submitting applications because we've lost faith that these things are actually going to be carried out in any reasonable time," Craven said in a phone interview. The utilities require a series of applications and fees that Craven said makes the process too onerous. SolarCity has installed a total of 65 of the systems in areas overseen by PG&E Corp. (PCG), Edison International (EIX)'s Southern California Edison and Sempra Energy (SRE)'s San Diego Gas & Electric. "The ones we have submitted haven't gone anywhere," he said. Homeowners with rooftop panels buy less electricity from the grid, and those who use batteries to store power may need to purchase even less.

Wind Industry's New Technologies Are Helping It Compete on Price

[New York Times, Mar. 20] The wind industry has gone to great lengths over the years to snap up the best properties for its farms, often looking to remote swaths of prairie or distant mountain ridges to maximize energy production and minimize community opposition. Now, it is reaching for the sky. With new technology allowing developers to build taller machines spinning longer blades, the industry has been able to produce more power at lower cost by capturing the faster winds that blow at higher elevations. This has opened up new territories, in places like Michigan, Ohio and Indiana, where the price of power from turbines built 300 feet to 400 feet above the ground can now compete with conventional sources like coal. And efforts to capture the wind could go even higher. In perhaps the most extreme example, a start-up called Altaeros Energies is preparing to introduce its first commercial pilot of an airborne wind turbine in Alaska. Known as the BAT — or Buoyant Airborne Turbine — the enormous, white helium-filled doughnut surrounding a rotor will float about 1,000 feet in the air and feed enough electricity to power more than a dozen homes through one of the cables tethering it to the ground. But the skyward expansion has already taken flight throughout the wind industry, transforming parts of the Midwest once shunned into wind powerhouses.

LEGISLATION AND REGULATION

FERC Approves License for Cutting-Edge Tidal Energy Project

This 700-kW project will be located in Washington State.

[RenewableEnergyWorld.com, Mar. 21] Houston, TX – The Federal Energy Regulatory Commission on March 20 issued a 10-year pilot license to Public Utility District No. 1 of Snohomish County for the proposed Admiralty Inlet Pilot Tidal Project to be located in the Puget Sound in the state of Washington. The 600-kW Admiralty Inlet Project is an experimental project designed to determine whether commercial development of the tidal energy resources of Puget Sound is commercially viable. The March 20 action authorizes Public Utility District No. 1 of Snohomish County to study, monitor, and evaluate the environmental, economic, and cultural effects of hydrokinetic energy. "The Admiralty Inlet Project is an innovative attempt to harness previously untapped energy resources," said Acting FERC Chairman Cheryl LaFleur. "I look forward to the results of the experimental project and congratulate Snohomish for undertaking it."

Sen. Inhofe Introduces Legislation to Encourage the Production of NGVs

[Natural Gas Vehicles for America, Mar. 11] WASHINGTON, D.C. – NGVAmerica applauds the work of Sen. Jim Inhofe (R-OK), a senior member of the Environment and Public Works (EPW) Committee, and Sen. Carl Levin (D-MI) for introducing the Alternative Fuel Vehicle Development Act (S.2065), a bill that would incentivize the production and purchase of natural gas and other alternative fuel vehicles. Specifically, the law would remove the current cap placed on the number of credits automakers can receive for the production of alternative fuel vehicles under the CAFE program. Automakers earn the majority of their credits for producing E85 Flex-Fuel vehicles, leaving few, if any, credits to be earned for the production of natural gas vehicles (NGVs). The legislation would also encourage the purchase of natural gas and other alternative fuel vehicles by giving states the option of allowing these vehicles to use high-occupancy vehicle (HOV) lanes without passenger restrictions.

Steven Chu Solves Utility Companies' Death Spiral

[Forbes, Mar. 21] Utility companies have been looking for new regulations and higher connection charges to save them from a “death spiral” spurred by a surge in rooftop solar installations. Instead, says former Energy Secretary Steven Chu, they should get into the rooftop solar business. Utilities are in danger of being FedExed, Chu said, “like the Post Office got FedExed,” as rooftop solar modules drop in price. “The cost of modules has plummeted. In California where I live, that means for $10,000 you can generate a lot of electricity. The cost of batteries is plummeting, so that in five maybe 10 years at the outside, a $10,000 or $12,000 system will allow me to go, on average, 80 percent off grid. “That’s pretty exciting. So this is a technology that could be disruptive to electricity production and generation.” The industry-funded Edison Electric Institute warned utilities of this scenario in a January 2013 report called “Disruptive Challenges: Financial Implications and Strategic Responses to a Changing Retail Electric Business” (pdf). Wall Street Journal reporter Liam Denning described this scenario, in which solar becomes increasingly attractive to the customers who can afford it, as a ”death spiral” in December, and utility insiders have been echoing that phrase. Utilities like Exelon owned ComEd and Pacific Gas & Electric are looking to regulators to save them by changing pricing structures so they can recoup more of the costs of maintaining the grid infrastructure. “They think they’ve got it solved,” Chu said, but if utilities charge customers more to connect to the grid, those charges will also spiral—upward—as more customers install solar.

WESTERN POWER

Colorado Leads the Way on 'Small Hydro'

[KUNC.org, Mar. 19] For much of the 20th century, hydroelectric technology led to the construction of giant dams across the American West and around the world. Big hydro projects have a big impact on surrounding ecosystems, Colorado is at the center of a growing move toward hydropower on a smaller scale. An old U.S. government film touting the Hoover Dam, a massive structure built in the 1930’s on the Arizona-Nevada border, promotes the structure as having a “concrete yoke about its neck to harness its tremendous water and power resources.” The Hoover Dam backs up the Colorado River, forming Lake Mead. In addition to water storage, the project also generates electricity for over one million people. Most energy experts and conservation advocates agree that hydropower projects that big are a thing of the past in the arid West. “In the Colorado River basin I think it’s highly unlikely we’ll see something on the scale of Hoover Dam,” says Matt Rice, Colorado River Basin Program Director for American Rivers, a nonprofit river protection and restoration group. When it comes to hydropower, Rice and American Rivers are strong supporters, if you don’t have to alter the landscape. “We’re very much in favor of hydropower that’s developed on existing infrastructure,” Rice says. “In the state of Colorado, there’s a lot of infrastructure that water flows through, over, under that does not have hydropower installed on it. So we’re vigorous advocates for that class of hydropower development.” This is most often referred to as “small scale hydro” — generating electricity with the flow of an existing

waterway like an irrigation ditch or canal, without making any big changes to the land around it. It could be as a small as a few kilowatts to cover some of the electricity needs on a single ranch. Or it might be big enough to generate a few megawatts, enough power for thousands of homes. Recent federal rule changes have made it easier to win approval for small hydro projects.

First Solar Seeking Growth to Replace Giant Desert Plants
[Bloomberg, Mar. 18] The biggest U.S. solar panel maker is preparing to set out its strategy for growth as sales lag for its large-scale power projects in the deserts of the southwest. First Solar Inc. gets about 65 percent of its revenue from selling giant solar farms to utilities, a market that's slowing after its best customers bought all the clean energy they need. The manufacturer is missing out on the current boom in rooftop solar, which is surging since SolarCity Corp. (SCTY), backed by billionaire Elon Musk, helped popularize a way to finance home installations. The shift from bigger solar projects toward smaller ones leaves analysts concerned that First Solar will be left behind as the industry recovers from a two-year slump that bankrupted dozens of competitors. Chief Executive Officer Jim Hughes is pushing for more sales overseas and bought a company last year that will tap the rooftop market in Japan.

ARIZONA STATE INCENTIVES/POLICIES

ARIZONA COMMERCE AUTHORITY (ACA)

- Angel Investment Tax Credit Program - The main objective of the Angel Investment program is to expand early stage investments in targeted Arizona small businesses. The program accomplishes this goal by providing tax credits to investors who make capital investment in small businesses certified by the Arizona Commerce Authority (ACA). To view the list of businesses that have been certified under this program please click here. LEARN MORE

- Arizona Innovation Accelerator Fund - The Arizona Innovation Accelerator Fund Program is an $18.2 million loan participation program funded through the U.S. Department of Treasury's SSBCI and managed by the Arizona Commerce Authority. The goal of this program is to stimulate financing to small businesses and manufacturers, in collaboration with private finance partners, to foster business expansion and job creation in Arizona. LEARN MORE

- Arizona Innovation Challenge - The Arizona Innovation Challenge is an investment in the minds of talented entrepreneurs in Arizona and around the world. The ACA will award $1.5 million to the most promising technology ventures that participate in the Challenge (awards may range from $100,000 to $250,000). LEARN MORE

- AZ Fast Grant - Enables Arizona-based technology companies to initiate the commercialization process. Total funds available for this grant round are $175,000. Maximum awards of $5,000 and $20,000 will enable companies to accomplish one of four scopes of work. LEARN MORE

- AZ Step Grant - Grant funding from the U.S. Small Business Administration (SBA) with matching funds contributed by the Arizona Commerce Authority (ACA) offering a number of services and tools to Arizona small businesses as they go global for the first time with sales or enter new, international markets. LEARN MORE

- Commercial/Industrial Solar Energy Tax Credit Program - The primary goal of the Commercial/Industrial Solar Energy Tax Credit Program is to stimulate the production and use of solar energy in commercial and industrial applications by subsidizing the initial cost of solar energy devices. The program achieves this goal by providing an Arizona income tax credit for the installation of solar energy devices in Arizona business facilities. LEARN MORE

- Healthy Forest - The primary goal of the Healthy Forest Enterprise Incentives Program is to promote forest health in Arizona. The program achieves this by proving incentives for certified businesses that are primarily engaged in harvesting, processing or transporting of qualifying forest products. LEARN MORE

- Job Training Program offers job-specific reimbursable grants for employers creating new jobs or increasing the skill and wage level of their current employees. Deadline: Year Round. LEARN MORE

- Renewable Energy Tax Incentive Program offers a refundable income tax credit and property tax reduction to companies in solar, wind, geothermal and other renewable energy industries who are expanding or locating a manufacturing or headquarters operation in Arizona. The tax credit is up to 10% of the total qualified investment amount and the property tax benefit can reduce a company's property taxes by up to 75%. Deadline: Year Round. LEARN MORE

- Research and Development Tax Credit is an Arizona income tax credit for increased research and development activities conducted in this state. Starting in 2010, a qualifying company may be eligible to claim a partial refund of its current year excess R&D credit. Applicants may apply at the end of their tax year but prior to filing a tax return with Revenue. LEARN MORE

- Quality Jobs Tax Credit Program - The primary goal of the Quality Jobs Tax Credit program is to encourage business investment and the creation of high-quality employment opportunities in the state. The program accomplishes this goal by providing tax credits to employers creating a minimum number of net new quality jobs and making a minimum capital investment in Arizona. LEARN MORE

- Bonds Administered by the Arizona Commerce Authority
  - Private Activity Bonds (PAB) - Tax exempt bond financing, for federal purposes, offers an alternative financing mechanism for certain projects. LEARN MORE
  - Qualified Energy Conservation Bonds (QECB) - Tax credit bonds are available as an alternative financing mechanism for certain green projects. LEARN MORE

- Federal Programs
  - Small Business Innovation Research (SBIR) Program - SBIR is a competitive program that encourages small businesses to explore their technological potential, as well as, providing incentive to profit from its commercialization. LEARN MORE
  - Small Business Technology Transfer (STTR) Program - STTR is an important small business program that expands funding opportunities to meet the nation's scientific and technological challenges in the 21st century. LEARN MORE
  - Work Opportunity - The Work Opportunity Tax Credit (WOTC) is a federal tax credit of up to $9,000 that Congress provides to private-sector businesses for hiring individuals from nine target groups who have consistently faced significant barriers to employment. LEARN MORE

- Pollution Control Tax Credit - Provides a 10 percent income tax credit on the purchase price of real or personal property used to control or prevent pollution.

- Renewable Energy Production Tax Credit - An income tax credit awarded to

utility-scale generation systems based on the amount of electricity produced annually for a 10-year period using solar or wind energy. Questions can be directed to Georganna Meyer (602-716-6927) or Elaine Smith (602-716-6924).

- Sales Tax Exemption for Machinery and Equipment
  Exemptions are available for:

  1. Machinery or equipment used directly in manufacturing, see ARS 42-5159(B)(1).
  2. Machinery, equipment or transmission lines used directly in producing or transmitting electrical power, but not including distribution, see ARS 42-5159(B)(4).
  3. Machinery or equipment used in research and development, see ARS 42-5159(B) (14).

Questions can be directed to Christie Comanita (602-716-6791).

- Solar Liquid Fuel Tax Credit - Income tax credits are available for research and development, production and delivery system costs associated with solar liquid fuel. Questions can be directed to Georganna Meyer (602-716-6927) or Elaine Smith (602-716-6924).

- Database of State Incentives for Renewables and Efficiency (DSIRE)
  - Arizona Incentives/Policies
  - Federal Incentives/Policies
  - Solar Policy News - DSIRE provides summaries of current solar policy developments and an archive of past solar policy developments. Current solar news appears below the news archive, which is searchable by several criteria.

GRANTS

The following solicitations are now available:
(Click on title to view solicitation)

- FY 2014 Vehicle Technologies Program Wide Funding Opportunity Announcement - Close Date: April 1, 2014

- Renewable Carbon Fibers - Concept Papers Submission Deadline: 03/03/2014 at 5:00 P.M. Eastern Standard Time. Submission Deadline for Full Applications: 04/11/2014 at 5:00 P.M. Eastern Standard Time

- Geothermal Play Fairway Analysis - Close Date: April 11, 2014

- U.S. Wind Manufacturing: Taller Hub Heights to Access Higher Wind Resources and Lower Cost of Energy - Close Date April 14, 2014

- Building Energy Efficiency Frontiers and Incubator Technologies (BENEFIT) - 2014 - Close Date April 21, 2014

- Clean Energy Manufacturing Innovation Institute for Composites Materials and Structures - Close Date: April 22, 2014

- Integrated Enhanced Geothermal Systems (EGS) Research and Development - Close Date April 30, 2014

- Low Temperature Geothermal Mineral Recovery Program - Close Date May 2, 2014

- Commercial Building Technology Demonstrations – Concept Paper Submission Deadline: March 31, 2014. Full Application Submission Deadline: May 19, 2014.
- Bioenergy Technologies Incubator - Close Date: May 23, 2014
- Advanced Fossil Energy Projects - Solicitation Number: DE-SOL-0006303 - Expiration Date 11/30/2016
- Sunshot "Race to the Roof" Initiative - Registration Due October 31,2014
- Repowering Assistance Program – Ongoing
- Rural Business Enterprise Grants - Ongoing
- Rural Business Opportunity Grants – Ongoing
- Sustainable Agriculture Research and Education Grants - Ongoing
- Renewable Energy RFP's - Solicitations for Renewable Energy Generation, Renewable Energy Certificates, and Green Power – Various Deadlines

- U.S. Dept. of Agriculture - Rural Development Grant Assistance

ENERGY-RELATED EVENTS

2014

- NEW! West Coast Storm & Disaster Planning
  April 2-3, 2014 Portland, OR
- NEW! Transmission Expansion in the West
  April 7-8, 2014 Scottsdale, AZ
- NEW! ASHRAE High Performance Building Conference
  April 7-8, 2014 San Francisco, CA
- Clean Tech Future Conference III
  April 9, 2014 Phoenix, AZ
- NEW! Arizona Building Officials Conference
  April 14-18, 2014 Tucson, AZ
- NEW! Green Tech's Media Solar Summit 2014
  April 14-16, 2014 Phoenix, AZ
- International Geothermal Energy Forum
  April 23-24, 2014 Washington, DC
- 32nd Annual Solar Potluck & Exhibition
  April 26, 2014 Catalina State Park
- 11th Annual Construction in Indian Country Nat'l., Conference
  April 28-30, 2014 Chandler, AZ
- VerdeXchange Arizona
  April 30-May 2, 2014 Phoenix, AZ
- Cybersecurity Summit
  May 7, 2014 Scottsdale, AZ

- AWEA Windpower 2014
  May 5-8, 2014 Las Vegas, NV
- AZ Water Association Annual Conference & Exhibition
  May 7-9, 2014 Glendale, Arizona.
- Beyond the Border: Arizona Trade Mission to Mexico City & Guadalajara
  May 12-16, 2014
- Sunshot Grand Challenge Summit 2014
  May 19-22, 2014 Anaheim, CA
- Native American Economic Development & Energy Projects Conference
  June 16-17, 2014 Anaheim, CA
- AZBio Expo 2014
  June 19, 2014 Scottsdale, AZ
- 32nd Annual West Coast Energy Management Congress
  June 25-26, 2014 Seattle, WA
- NEW! Solar 2014: 43rd Annual Conference
  July 6-10, 2014 San Francisco, CA
- National Geothermal Summit
  August 5-6, 2014 Reno, NV
- NEW! 2014 ACEEE Summer Study on Energy Efficiency in Buildings
  August 17-22, 2014 Pacific Grove, CA
- NEW! EPI's 4th Annual Energy Policy Research Conference
  September 4-5, 2014 San Francisco, CA
- HTUF 2014 National Meeting - The Forum for Action in High-Efficiency Commercial Vehicles
  September 22-24, 2014 Argonne, National Lab Argonne, IL
- Geothermal Energy Expo
  September 28-October 1, 2014 Portland, OR
- Governor's Celebration of Innovation
  November 13, 2014
- ASU Sustainability Series Events
- Green Building Lecture Series
  Granite Reef Senior Center Scottsdale, AZ